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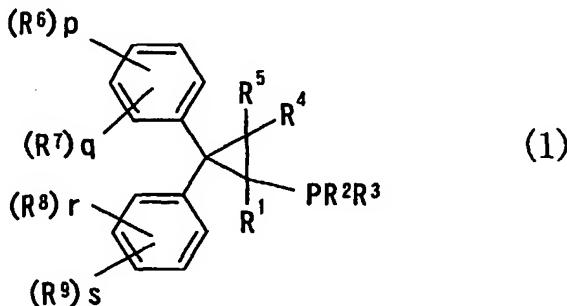
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(54) Title: PHOSPHINE COMPOUND, INTERMEDIATE, PALLADIUM-COMPLEX, AND USE THEREOF



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group; R⁶ and R⁷, R⁸ and R⁹ may be combined to form, each, a fused ring, a trimethylene group, a tetramethylene group or a 20 methylenedioxy group; p, q, r and s are each an integer of 0 to 5; and p + q, and r + s are each in the range of 0 to 5.), which is a novel and efficient catalyst for manufacturing various useful compounds.

(57) Abstract: Palladium-phosphine complexes obtained by reacting a 5 compound of formula (1) below with a palladium compound: (wherein R¹ is a hydrogen atom, an alkyl group, a cycloalkyl group or a phenyl group which may be substituted; R² and R³ are each, the same or different, an alkyl group, a cycloalkyl group or a phenyl group which may be substituted; R⁴ and R⁵ are each, the same or different, a hydrogen atom, an alkyl group, a cycloalkyl group or a phenyl group which may be substituted; R⁶, R⁷, R⁸ and R⁹ are each, the same or different, an alkyl group, a cycloalkyl group, a phenyl group which may be substituted, an alkoxy group, a dialkylamino group, a halogen atom, a phenyl group, a benzyl group, a naphthyl group or a halogenated alkyl



- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	TOPOLSKI, M. ET AL: "Chiral carbenoids: their formation and reactions" JOURNAL OF ORGANIC CHEMISTRY (1993), 58(3), 546-55, 1993, XP002279592 the whole document ---	11
X	WALBORSKY, H. M. ET AL: "Carbenoids. Metal assisted ionization" TETRAHEDRON LETTERS (1985), 26(23), 2743-6 1985, XP002279593 the whole document --- -/-	11

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BOCHE, G. ET AL: "Alternative pathways in the reactions of cyclopropyl halides with alkali metal naphthalenes" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY (1980), 102(17), 5697-9 , 1980, XP002279594 the whole document ---	11
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X	SANDER, VOLKER ET AL: "Synthesis and reactions of 1-chloro-1-cyclopropanecarboxylic acids and 1-cyclopropene-1-carboxylic acids" CHEMISCHE BERICHTE (1978), 111(12), 3879-91 , 1978, XP008030603 the whole document ---	11
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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X	HAUSSER, JACK W. ET AL: "Solvolyisis of cyclopropyl halides. 2-Phenylcyclopropyl chlorides" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY (1967), 89(26), 6981-4 , 1967, XP002279600 the whole document -----	11
P,X	IKEDA, HIROSHI ET AL: "Spectroscopic and Calorimetric Studies on the Mechanism of Methylenecyclopropane Rearrangements Triggered by Photoinduced Electron Transfer" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY (2003), 125(30), 9147-9157 , 2003, XP002279601 the whole document -----	11